

REMARKS/ARGUMENTS

The above-noted amendments to the claims are respectfully submitted in response to the official action dated June 22, 2009. With respect to the limitations concerning the first side of the elongated slit presenting a contoured surface with an outer end having a dimension which is less than that of the inner portion of the elongated slit, this limitation is supported throughout the specification, and specifically shown, for example, in Figs. 1a through 4b hereof. With respect to the limitation requiring that the elastomeric material can fit and lock within the cross-sectional profile of the elongated slit, this limitation is also supported throughout the specification, and specifically set forth in ¶¶ [0030] and [0055] of the specification. It is thus submitted that no new matter is included in these amendments, and since in applicants' view these amendments clearly place these claims in condition for allowance, entry of these amendments is respectfully solicited. If nothing else, however, it is believed to be clear that these amendments reduce the number of issues presented for purposes of appeal and for that reason alone it is respectfully requested that these amendments be entered at this time.

In the latest official action, the Examiner has now, and for the first time, rejected claims 29-33, 35-49, 51, 55, 56, and 58 as being anticipated by Weeks under 35 U.S.C. § 102(b). The Examiner contends that Weeks teaches a doctor blade mounting system for applying liquids to a rotatable cylinder in printing equipment comprising an elongated frame mounted adjacent to the rotatable cylinder and including a support and a clamping portion mounted with respect to the support, citing element 19 in Fig. 1. The clamping portion is said to include an elongated slit 20 defining an opening for the doctor blade disposed within the slit parallel to the cylinder

for wiping engagement with the cylinder and clamping means 31 for fixing the doctor blade within the slit with the second side of the slit presenting a substantially planar surface for the second side of the doctor blade whereby the doctor blade can be held along the planar surface with a substantially even clamping force, citing the arrangement of blade 17 and clamping means 31 in slit 20 shown in Fig. 2. The clamping means is said to comprise an elastomeric material within the slit which is accessible for removal with the doctor blade whereby the elastomeric material is resiliently disposed with respect to the first side of the doctor blade to provide a damping action therefor, and is said to be removable from the opening to assist in subsequent removal of the doctor blade from the elongated slit by stating that it appears that clamping member 31 is removable from slit 21 in Fig. 1.

As for claim 40, the clamping means is said to comprise an elastomeric material disposed within the elongated slit and accessible for removal from the opening in the slit with the doctor blade in which the elastomeric material is said to be 60 durometer rubber.

With regard to claims 30 and 41, Weeks is said to teach the clamping means being tightly received within the elongated slit; that the clamping means fixes the doctor blade by means of friction (claims 31 and 42); and supports at least the first side of the doctor blade disposed within the slit (claims 32 and 43); and the clamping means being resiliently disposed within the elongated slit (claims 33 and 44); as well as the clamping means comprising at least one elastomeric member (claims 35 and 46); and at least a portion of the elastomeric member being in the shape of a wedge strip intended to fit and lock within a cross-section profile of the elongated slit (member 31 is said to appear to fit and lock in slit 20 in Fig. 2 thereof) (claims 36 and 47); and wherein at least a

portion of the clamping means supports an edge of the doctor blade within the slit (claims 37 and 48); and with the elastomeric member having a hardness of about 70 degrees Shore (claims 38 and 49); with the support in the clamping means comprising separate parts (19 and 31); and the support including an end and the clamping means resiliently clamping the clamping portion to the end (claim 39); with the clamping means being removably disposed within the slit (claim 45). Weeks is also said to teach a method for removably clamping a doctor blade in a clamping member as in claims 51 and 55. This rejection is respectfully traversed in view of the above amendments and arguments and for the reasons set forth hereinafter.

Applicants will now demonstrate, particularly in view of the above-noted amendments to the claims, that the doctor blade mounting system of the present invention is not only quite different and distinguishable from that of Weeks, but that it clearly focuses on an entirely different objective, such that neither of these inventions could conceivably attain the objectives of the other. The principal objective of Weeks is to provide an angled doctor blade for conventional gravure presses which can use a material of preferred hardness for the doctor blade itself without causing undue damage to the cylinder which it is intended to contact. To accomplish this, Weeks has invented a three-part assembly which can be, as a single unit, applied to the cylinders in question. On the other hand, the present application is directed to a doctor blade system in which a chambered doctor blade which has low weight but also has sufficient flexural and portional rigidity in order to provide for even contact with the cylinder, and which is also easy to clean and maintain. The latter is thus accomplished in accordance with the present invention by a simple and quick exchange of ink without the need to remove the chamber from the printing press itself. In a simple procedure, the doctor blade can be removed, reversed, or replaced, as well as cleaned, without the need to remove the entire system from its

environment. Nothing like this is at all possible with Weeks — indeed it is not even deemed to be desirable by the patentee of the Weeks patent.

According to Weeks, the entire angled blade arrangement in which the doctor blade is disposed includes working portion 17, for contacting the cylinder at the preferred angle, support section 18, and rigid coupling member 19 joining these two sections at a desired angle. It is clear from this disclosure, and will be made even clearer with reference to the discussion concerning Fig. 2 of Weeks, that this is a system in which this entire doctor blade arrangement is replaced in its entirety, such as when the working blade section 17 of the doctor blade is worn out.

Turning to Fig. 2 of Weeks, it can thus be seen that the assembly of the blade section 17 and 18 with the connecting element 19 is said to be accomplished with the aid of a compression jig as shown in Fig. 2. This includes a shallow V-shaped support 35 whose contours are said to match the initial outer contours of the extruded coupling member 19. Thus, after the blade sections 17 and 18 are inserted into respective slotted recesses 20 and 25, along with resilient strip elements 31 and 32, the entire assembly is placed on the V-shaped support element 35. A compression element 36 in the form of an elongated cylindrical pressure bar rigidified by support member 37 is pressed downwardly onto the coupling member 19 as shown in Fig. 2. This is said to be accomplished by a suitable hydraulic press or the like to apply relatively uniform pressure across the full length of the pressure bar 36. The dimensions of the coupling member 19 are said to be such that the pressure bar contacts the coupling member principally at two widely spaced points 38 and 39, which constitute the outer end portions of the walls of the coupling member. Upon the application of sufficient downward pressure at these points "the walls 22, 27 of the coupling member are deformed downwardly." This displacement of material occurs at the outer extremities and "causes the slotted recesses 20, 25 to be permanently deformed into a somewhat trapezoidal configuration,

compressing and deforming the resilient stripes and tightly and permanently gripping the respective blade sections 17, 18." (Emphasis added.)

This is the precise stated objective of Weeks. It can thus be seen that, in view of this process, deformation of the slits in the clamping portion is not only permanent, but the opening of the slit now becomes substantially smaller than the size of the slit at its bottom. This is clearly intended to be a single unit and not one in which the doctor blade can be easily replaced, and certainly not readily replaced in accordance with the present invention.

The present claims require a doctor blade mounting system in which one side of the elongated slit provides a substantially planar surface for one side of the doctor blade, so that the doctor blade can be held along that surface with a substantially even clamping force, while the other side of the clamping means presents a contoured surface including an outer surface (corresponding to the slit opening) with a predetermined dimension which is less than the dimension of the inner portion, whereby the clamping means can fit and lock within the profile of the elongated slit, and at the same time can be easily removed along with the doctor blade for the purposes of the present invention. The differences between the structures and objectives of these two very different inventions reside at least in part on the fact that the contour required for the elongated slit of the present invention is present in the initial, extruded product itself, while the size of the opening in Weeks is only created after the doctor blade and elastomeric materials have been placed therein and the slit deformed in the manner required thereby. Thus, a wedge strip of rubber-like material in accordance with the present invention is pressed into a narrow outer portion of the slit, which is thus locked therein by the fact that it is expanding further into the slit which has a second or broader dimension. It is only in this manner that a system is provided for not only adequately holding the doctor blade by means of the wedge strip, but which is quickly and easily removable and reinstalled by reapplying it

into the slit for locking a new doctor blade in the same holder or slit. Furthermore, the doctor blade is held with a substantially lower force than in conventional mechanical joints or screw joints.

Even though it is clear that the rubber strip holding the doctor blade 17 in Weeks is not removable, even if it were somehow removable, it is difficult to appreciate precisely how a new rubber strip could then be introduced into the already clamped or deformed slit provided by Weeks. Certainly there would be no point in introducing a thinner rubber strip, which would thus be less effective even for the purposes of Weeks, which would then have to be deformed in accordance with the teachings of Weeks.

In accordance with Weeks, the entire angled doctor blade arrangement must be removed from the printing press, cleaned and sent to a workshop including a large edging press equipped with special tools in order to replace it in any way. One thing is clear — the single unit angle blade arrangement in Weeks must be replaced in its entirety after it is produced, or the system would be destroyed and unable to be used at all. This, of course, requires shutdown of the entire apparatus, for extended periods of time, unless, of course, additional spare parts or other mechanisms are maintained at increasing costs therefor. This can be vividly contrasted to the present invention, in which a doctor blade itself, as well as the clamping member, can be easily removed by hand, cleaned and replaced without the need for this type of expensive and lengthy operation.

It is also noted that Weeks is clearly directed to gravure printing. Typical gravure printers can be from two and one-half to three and one-half meters wide, and the angled doctor blade arrangement of Weeks must be slightly longer than the roll surface to wipe ink off over that entire surface. Thus, in order to assemble all parts into one unit, access to a large edging press in a mechanical workshop is required. These are heavy, large machines which are quite expensive, and a considerable amount of additional equipment is also required in

order to maintain all parts in place prior to actual pressing. Thus, the doctor blade in the holder 17 of Weeks is required to be held down in the clamping portion immediately before and during the entire pressing process along its entire length in order to guarantee that both blades abut against the bottom of the respective slit. The blade arrangement itself must be manufactured in tailored lengths in a large amount to keep the manufacturing costs to a minimum.

In vivid contrast to Weeks, the present invention provides a doctor blade mounting system in which the doctor blade is first introduced into the slit in the clamping portion. The blade can then be lubricated with Vaseline, for example, on both sides of the edge being inserted into the slit, and the rubber wedge strip can then be lubricated with Vaseline or the like, and then pressed by hand into the slit where the blade is present to lock the blade in place. The wedge strip is then pressed point-wise along its entire length simultaneously with the blade being held down in each such position. A rag or cloth can then be pressed upon the edge of the blade along its entire length to guarantee that the blade rests at the bottom of the slit. The position of the blade is thus correctable immediately after assembly of the rubber wedge strip, again as contrasted to Weeks. The present invention provides for a quick and easy way to replace doctor blades repeatedly and directly in the printing press without the need for any tools, except for a simple sponge and a rag. As required, the slit for the doctor blade in accordance with this invention is shaped such that it is easy to clean and maintain and where the clamping device does not need to be dismantled or opened up so that the various parts of the device can be cleaned.

It is thus clear that when the Examiner contends that the doctor blade is accessible from the opening to assist in removing the doctor blade from the elongated strip, this conclusion is certainly not based upon anything from the actual Weeks disclosure. To the contrary, the clamping member 31 is not removable from the slit 20. The doctor blades in Weeks are permanently clamped at their openings, as shown in Fig. 2, in

order to lock the blades in place, rendering it impossible for the rubber strips to be dismountable therefrom.

As an example of the distinctions between the two inventions involved here, in accordance with the system of the present invention, the wedge strip can be quickly removed, and the damaged doctor blade can be turned around so that the damaged end ends up at the bottom of the slit. A new blade has thus been rapidly prepared, the wedge strip has been replaced, and the system is immediately ready for operation. Thus, the damaged blade does not even need to be discarded as is the case in Weeks, but may be reused. Since damage to these doctor blades is not an uncommon event, this alone can be a significant advantage to those utilizing the present invention. It is therefore respectfully submitted that the present claims as now set forth, and all of the claims now set forth herein, clearly and patentably distinguish over Weeks, which is not only entirely inadequate as an alleged teachings under Section 102(b), but which does not render these claims obvious in any way, shape or form. Reconsideration and allowance of these claims is therefore respectfully solicited.

Claim 50 has been rejected as being unpatentable over Bööse *et al.* in view of Weeks under 35 U.S.C. § 103(a). The Examiner contends that Bööse *et al.* teaches a chambered doctor blade mounting system in Fig. 1 for applying liquids to a rotatable cylinder with an elongated frame 13 mounted adjacent to the cylinder and comprising a support and a pair of clamping portions 19 and 20, as well as a pair of elongated doctor blades 9 and 10 mounted thereon. The doctor blades are said to be disposed parallel to the cylinder for wiping engagement, and each of the pair of clamping portions is said to include an elongated slit for receiving the doctor blades, referring to a "slit" between two pieces of metal (in Fig. 1). The clamping portions and their support comprise separate parts with the support including a pair of end portions and clamping means resiliently clamping the clamping portion to the pair of end

portions. The metallic clamping apparatus of Bööse *et al.* is said to be resilient in that it is capable of withstanding shock without permanent deformation or rupture.

After admitting that Bööse *et al.* does not teach the slit including an opening, the clamping means comprising an elastomeric member disposed within the slit and accessible whereby it can be resiliently disposed with respect to the doctor blade to provide a damping action and is accessible from the opening to assist in removing the doctor blade, the Examiner refers to Weeks as set forth above. After repeating the allegations previously set forth with respect to Weeks, the Examiner concludes that it would be obvious to modify Bööse *et al.* to include the blade mounting system of Weeks because one would easily combine these known prior art elements and the combination would provide a doctor blade clamping mechanism that is mechanically simple yet effectively firmly clamps the doctor blade.

With respect to claim 52, the Examiner contends that it would be obvious to apply lubricant in the Weeks product, and that Weeks includes manually inserting the clamping means into the slit. This rejection is respectfully traversed in view of the above amendments and arguments and for the reasons set forth hereinafter.

Applicants initially reiterate their above-noted contentions with respect to the clear deficiencies of the Weeks reference. As for Bööse *et al.*, this reference not only represents the invention of one of the co-inventors of the present application, but is part of the admitted state of the art as specifically discussed beginning at ¶ [0008] of the present specification. Bööse *et al.* thus represents a chambered doctor blade device of interconnected metal sections forming a flexurally and torsionally rigid unit ensuring contact distance between the frame and the cylinder against which the blades are

to be applied. As is discussed in the specification, this device has an internal chamber with clamping strips, strip blade holder or single doctor blades and channels, as well as external chambers. It thus has far too many parts, unnecessary inked surfaces and nooks with capillary slots which are difficult to access to achieve simple and efficient cleaning of the printing unit, as in the case with the present invention. Furthermore, the doctor blades in such prior art devices tend to wear out far too quickly, causing frequent changes in the blades to become necessary, and to substantially increase the expense associated therewith. For these reasons, applicants, including the co-inventor of Bööse *et al.*, have developed the present invention so that a doctor blade system of relatively low weight has been devised with sufficient flexural and torsional rigidity to ensure even covering of the cylinder with even doctor blade contact, which is relatively easy to clean and maintain, and in which stress of a doctor blade decreases. Furthermore, a system has now been provided in which the simple, safe and rapid change of doctor blades and end seals can be facilitated within and outside the printing press, and simple and rapid ink changes are possible without having to remove the chamber from the printing press.

When the Examiner thus states that it would be obvious to modify Bööse *et al.* to include the blade mounting system of Weeks, it is believed to be entirely improper. Indeed, this combination is anything but obvious to one of ordinary skill in this art. One of such skill would not look to Weeks for a solution to the problem with Bööse *et al.* because Weeks is a completely different type of system from the chambered doctor blades of Bööse *et al.* Weeks is simply a system with an angled blade in which the connecting profile between the carrier plate and the doctor blade is mounted by means of plastic deformation *i.e.*, a permanent joint is created. This, once again, prevents

one from obtaining the qualities of the present invention; namely, the ability to adjust and easily exchange blades in the clamping portions instead of permanently "gluing" the blades in place. Since Weeks teaches away from the present invention, it is clearly incompatible with this invention, and indeed even if one were to make the combination, the blades would become permanently attached and would not meet the requirements of the present claims. Applicants thus simply repeat all of their above contentions in this regard, and in particular with respect to the serious deficiencies of the Weeks reference.

As for the addition of lubrication, it is clear that, while the Examiner is correct that Weeks does not mention anything about lubrication, it is also clear that this is for a simple reason. Since the blades in Weeks are to be permanently applied, lubrication would have no impact on the results of this device. Thus, there is no incentive whatsoever to provide lubrication in an environment such as Weeks, as compared to its highly advantageous use in accordance with the present invention in which the doctor blades and clamping means can be readily removed and replaced. It is therefore respectfully submitted that these claims are also clearly patentable over this combination of references, and reconsideration and allowance of these claims is also respectfully solicited.

Claim 54 has been rejected as being unpatentable over Weeks in view of Bööse *et al.* under 35 U.S.C. § 103(a). After admitting that Weeks fails to teach the clamping means attached to a substantially U-shaped support, Bööse *et al.* is said to teach a chambered doctor blade with a U-shaped support 16. The Examiner concludes that it would be obvious to modify Weeks to include a U-shaped support in place of support 18 since Bööse *et al.* teaches that it is well known to use doctor blades on U-shaped supports, and such a combination would predictably allow the system of Weeks to be used in a chambered doctor blade

system. This rejection is respectfully traversed in view of the above amendments and arguments and for the reasons set forth hereinafter.

In addition to reiterating all of the above-noted contentions with respect to the deficiencies in both Weeks and Bööse *et al.*, it is simply noted that, contrary to the Examiner's allegations, one of ordinary skill in this art would not look to Weeks for any solution of deficiencies in the Bööse *et al.* reference. To the contrary, since Weeks is an entirely different type of system, as explained above, this would clearly not be the case. In accordance with the present invention, a clamping system for the blades is required which allows for the quick and easy exchange of blades. On the other hand, the U-shaped profile of 3 mm stainless steel according to Bööse *et al.*, is the body of the chamber blade and may thus not be discarded together with the doctor blades when they are worn out, since the cost of the chamber body would be extremely high (estimably between \$2,000 and \$4,000 in single samples with lengths of from 0.3 to 2 meters). It is therefore respectfully submitted that these claims are also clearly patentable over this combination of references, and reconsideration and allowance of these claims is also respectfully solicited.

Claim 57 has been rejected as being unpatentable over Weeks in view of Van Denend under 35 U.S.C. § 103(a). Admitting that Weeks fails to teach the elastomeric material comprising a first elastomeric material and including a second elastomeric material disposed within the slit, Van Denend is said to teach applying an elastomeric member to a doctor blade. The Examiner thus concludes that it would be obvious to modify Weeks by attaching an elastomeric strip to the doctor blade as taught by Van Denend. This rejection is respectfully traversed in view of the above amendments and arguments and for the reasons set forth hereinafter.

In addition to repeating all of the clear deficiencies of Weeks as discussed above, Van Denend is primarily intended to seal a gap between the doctor blade and the clamping device to prevent ink from penetrating into this gap, and to minimize the need for cleaning during changing of the blade itself. Thus, at column 3, line 5 Van Denend specifies the use of a closed cell foam which comprises a thin sealing layer which is intended to be permanently affixed across the surface of the thin doctoring plate. Once again, as contrasted to the present invention, there is no suggestion in this combination of references including Van Denend of an easily removable wedge strip of solid rubber which can be reused again and again. It would thus be pointless to use blades with a sealing strip according to Van Denend in the blade holding system according to the present invention. It would simply defeat the purposes of this invention. The solid rubber wedge strip of the present invention, together with lubrication of the doctor blade and the wedge strip, itself provides sufficient sealing against penetration into the slit. Furthermore, the slit shape also allows easy inspection and, if necessary, easy cleaning such as by a rag or the like, together with a suitable liquid. Again, as emphasized above, no mechanical part must be dismantled for cleaning in accordance with the present invention as is required, however, by Weeks. It is therefore respectfully submitted that these claims are also clearly patentable over the prior art, and reconsideration and allowance of these claims is also respectfully solicited.

Claim 59 has been rejected as being unpatentable over Weeks in view of Perez under 35 U.S.C. § 103(a). After admitting that Weeks fails to teach only up to about 30% of the entire length of the doctor blade disposed in the elongated slit, Perez is said to teach a doctor blade inserted into a slit in the clamping member where a majority of the doctor blade is

outside the slit. It is said to be mere routine experimentation to optimize a value such as this, and the Examiner concludes that it would be obvious to modify Weeks wherein only up to about 30% of the entire length of the doctor blade is disposed within the slit. This rejection is respectfully traversed in view of the above amendments and arguments and for the reasons set forth hereinafter.

Applicants once again repeat and reiterate all of their above-noted contentions with respect to the clear deficiencies of the cited Weeks reference. As for Perez, it does not even arguably overcome the clear deficiencies of Weeks as discussed above. The mere fact that in the environment of Perez, in which doctor blades are in contact with inking rollers provided with ceramic coatings such as with flexographic printing, the Examiner relies solely upon the fact that blades 5 and 7 in Fig. 2 appear from the drawing to meet those requirements. None of this, however, overcomes any of the above-noted deficiencies in Weeks, and applicants would therefore merely reiterate those deficiencies at this time, and assert that this claim is clearly also patentable over this combination of references. Reconsideration and allowance of this claim is therefore also respectfully solicited.

Applicants therefore again request that the above-noted amendments to the claims be entered, and that in fact all of the claims now be considered to possess the requisite novelty, utility and unobviousness to warrant their immediate allowance, which action is therefore respectfully solicited. If, however, the Examiner still does not agree with this position, it is nevertheless requested that these amendments be entered, at the very least for the purposes of appeal, since they clearly reduce the number of issues presented by this application. In any event, if the Examiner still does not believe that this application is in condition for allowance,

it is also respectfully requested that the Examiner telephone applicant's attorney at (908) 654-5000 in order to overcome any further objections thereto.

Finally, if there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

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Respectfully submitted,
Electronic signature: /Arnold H.
Krumholz/
Arnold H. Krumholz
Registration No.: 25,428
LERNER, DAVID, LITTENBERG,
KRUMHOLZ & MENTLIK, LLP
600 South Avenue West
Westfield, New Jersey 07090
(908) 654-5000
Attorney for Applicant

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